

From: kmerrill@knrd.org
To: ["Wilson, Wenona" <Wilson.Wenona@epa.gov>](mailto:Wilson.Wenona@epa.gov)
Date: 9/28/2016 2:43:32 PM
Subject: RE: Preliminary screening model for air impacts from Smelter near Kalispel Reservation

FYI- Attached is some info on the smelter project sent to us by the project proponent. PM numbers are omitted for some reason --Ken

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Water Resources Program
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From: Ken Merrill
Sent: Tuesday, September 27, 2016 4:46 PM
To: Wilson, Wenona
Cc: 'Bray, Dave'; Zach Welcker; Deane Osterman
Subject: Preliminary screening model for air impacts from Smelter near Kalispel Reservation

Hi Wenona,

Thank you for your time today, and as we discussed, the Tribe needs to understand how the proposed smelter might impact the home of the Kalispel people and understand how a redesignation of the Tribes airshed to Class 1 might affect the PSD permitting outcome and the Tribe's air quality. If there were a way that EPA could help to do some screening modeling, we think it would help the Kalispel develop the capacity to best protect our right to clean air on the reservation.

Thanks for the consideration --Ken

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10/11/2018



HiTESTSAND

Responsibly supplying Hi-quality silica

HiTest Sand Inc. Silicon Project Overview

September, 2016



Overview of recently built silicon plant

I. Introduction

HiTest Sand is an integrated silica quartz mining and silicon metals processing company based in Edmonton, Alberta. HiTest is the 100% owner of a high quality, large silica quartz mine deposit located near Golden, British Columbia. The existing open pit quarry is currently fully

permitted for 800,000 tonnes/year and was in operation from 1980-1999 with peak production rates of 110,000 tonnes/year shipped to Dow Corning for use in its Silicon Metal smelters in Washington and Oregon, USA.



In 2013, the lease deposits were assessed by third-party analysis to possess 51,000,000 tonnes of proven reserves with an additional 28,000,000 tonnes of probable reserves. In addition to over 300 historical tests showing the mine's Silica Ore samples contained 99.85% SiO₂ purity (Bondar-Clegg Certificate of Analysis), recent analysis in 2014 by Sintef Labs (Norway) on purity and thermal stability showed quartz samples have excellent resistance towards thermal shock heating and greater than 99.82% SiO₂ purity. These chemical and purity attributes (low Boron, low Phosphorous) make the HiTest silica quartz and processed silicon optimal for the premium processed silicon metals market, including polysilicon products, solar panels, LCD screens and aluminum alloys.



The combination of large proven reserves, high SiO₂ purity, and low regulated power prices provide a competitive environment for the construction and operation of an integrated silica quartz mining and silicon metals processing plant facility. The project's strategic advantages are

our ability to pull high quality silica raw materials from a single large mining operation into a co-located processing facility with low power rates, and to produce high grade silicon metals at competitive operating costs.

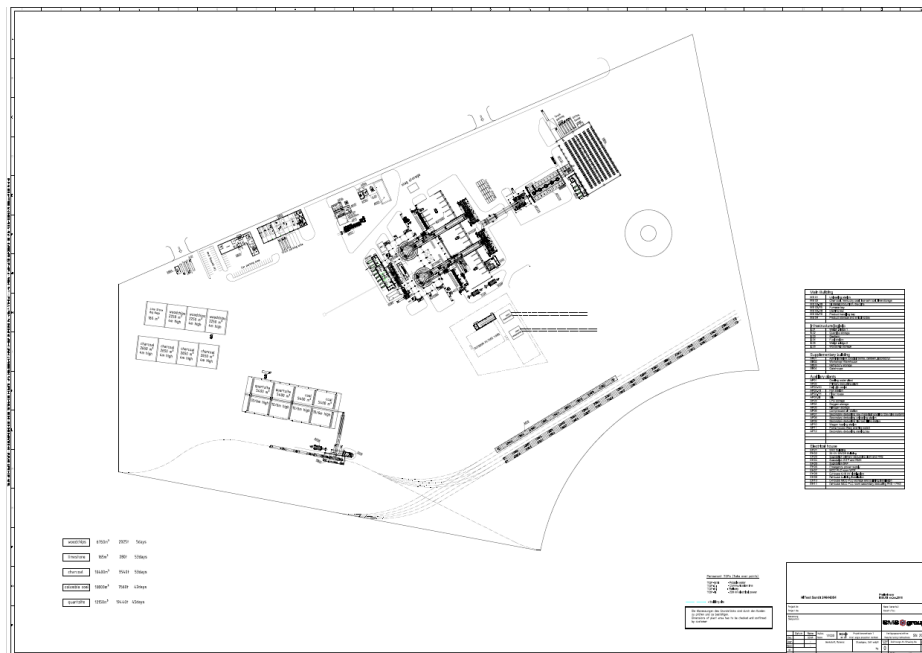
The submerged arc plant design will use two furnaces to produce 55,000 tonnes of tapped Silicon per year. Once commissioned in early 2019, the first HiTest plant will achieve 55,645 tonnes production.

Due to the high quantity of silica quartz supply available, the project is considering the development of two successive process plant projects, one co-located with the mine in Golden, BC and the other in Washington State, both with significant government support.

The project requires an estimated capital budget of USD \$300M to design, engineer, procure, construct and commission the first plant over a 22-month period with site construction targeted to start by Q2 2017. To date HiTest has spent approximately \$20Million of its own capital. Additionally, HiTest has secured debt finance options for up to USD \$200M and is finalizing terms with strategic equity investment partners for up to an additional \$150M in equity by Q4 2016 for the detailed project.

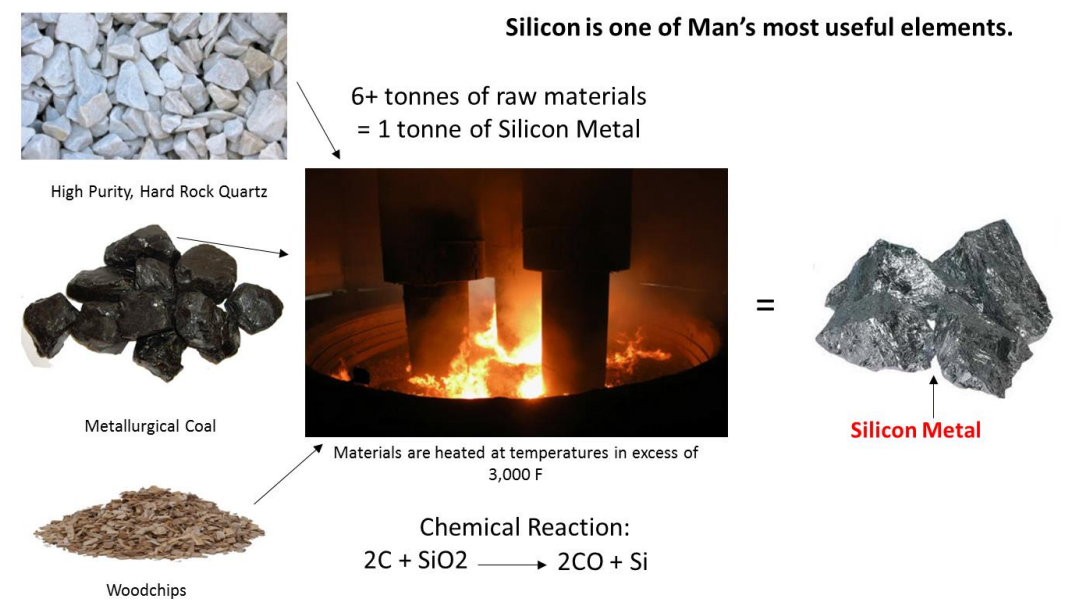
2. USK, WA Site

One of the potential sites is in USK, WA utilizing approx. 80 acres of un-developed land on the PNC property. A preliminary site layout is shown:



3. Process Description

Silicon Metal Production Process



Silicon Metal is produced at a temperature of about 2,000C in submerged-arc electric furnaces. The process requires about 13,000 kwh/MT of silicon metal produced. The main raw materials are high purity quartz rock, low ash metallurgical coal, wood chips and carbon electrodes. No hazardous waste or chemicals are involved in the process.

The plant will consume approximately:

143,000 tonnes of high quality quartz (brought by rail)

143,000 tonnes of local wood chips (brought by truck)

66,000 tonnes of low ash metallurgical coal (brought by rail)

4. Environmental Parameters

Typical Off-Gas Analysis and Data:

N₂ = 76 Vol%

O₂ = 18 Vol%

CO₂ = 4 Vol%

H₂O = 2 Vol%

Temperature = approx.. 200C

Off-gas Generation = approx. 70,000 nm³ per MT of silicon

Estimated Emissions of controlled gases

COX = 150,000 – 200,000 MT/year depending on furnace operating conditions

SOX = 1,500 – 2,000 MT/year depending on raw material selections

NOX = 1,000 – 2,000 MT/year depending on furnace operating conditions

Opacity = 5 – 15 % depending on operating conditions

Water Usage and Parameters

1. Closed loop system utilizing makeup water only = 200 – 300 gal/day.
2. Sanitary water for approx.. 170 employees
3. Storm water collection system

Solid Waste Parameters

1. Furnace Dust – approx.. 20,000 MT/year collected and sold – no waste
2. Refining slag and dross – approx. 4,000 MT/year collected and sold – no waste
3. Small amounts of misc. bag house dust collected and recycled – minimal waste
4. No hazardous wastes or heavy metals

For additional questions please contact:

Jim May – Chief Operating Officer HiTest Sand

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